

REMARKS

Initially, Applicant wishes to thank the Examiner for the courtesies extended during the several telephone conferences conducted in an attempt to advance prosecution of the application and for providing suggested claim amendments for overcoming the prior art.

Upon entry of this Amendment, claims 19-29 and 31-38 are all the claims pending in the application. Claim 30 has been canceled and claims 31-38 have been added. Claims 28 and 29 are withdrawn from consideration as being drawn to a non-elected invention. Claims 19-27 and 30 presently stand rejected.

The Examiner has indicated approval of the drawings filed December 5, 2001. However, Applicants filed a Submission of Formal Drawings on March 8, 2002. The Examiner is respectfully requested to acknowledge receipt and indicate approval of the drawings filed March 8, 2002.

Claims 19-27 and 30 are rejected under 35 U.S.C. § 112, first paragraph.

Claims 19-24 and 27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants Admitted Prior Art (AAPA) in view of JP 03069119 (Yasuki Nakao) and JP 03171616 (Ryozo Sato).

Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants Admitted Prior Art (AAPA) in view of JP 03069119 (Yasuki Nakao) and JP 03171616 (Ryozo Sato) and further in view of Wollam (USP 3,783,822).

Claims 26 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants Admitted Prior Art (AAPA) in view of JP 03069119 (Yasuki Nakao) and JP 03171616 (Ryozo Sato) and further in view of Schmidt (USP 5,343,938).

For the reasons set forth below, it is respectfully submitted that the claim rejections have been obviated and prompt allowance of the case is, therefore, requested.

In particular, in regard to the §112, first paragraph, rejection, Applicant has amended claim 19 to remove the alleged unsupported recitation. Further, Applicant has amended claim 19 in the manner explicitly suggested by the Examiner in an e-mail dated March 31, 2004. Accordingly, Applicant submits that the claims are now in condition for immediate allowance.

Patentability of New Claims

For additional claim coverage merited by the scope of the invention, Applicant has added new claims 31-38. Applicant submits that the prior art does not disclose, teach, or otherwise suggest the combination of features contained therein.

In particular, claim 31 is patentable at least by virtue of its dependence on claim 19.

Claim 32 recites that the annular substrate tray, the rotation input section, and the second rotating mechanism are substantially coplanar. This feature is supported in Figs. 1, 2, and 4 and at page 18, lines 8 to 20.' As best seen in Fig. 4, the rotation generating section 4 and the annular substrate tray 20 are coplanar because a stationary gear (rotation generating section) 4 meshes with gear teeth provided at the outer periphery of each substrate tray 20. Neither reference to Nakao or Sato discloses this feature.

Claims 33 and 34 recite that the susceptor includes no rotational shaft at the center thereof and the non-rotation shaft structure is provided at a center of the susceptor, respectively. These features are supported at page 27, lines 15 to 18. Neither reference to Nakao or Sato discloses this feature.

Claim 35 recites that upper and lower planes on the: susceptor within the outer periphery thereof being entirely exposed to the reacting chamber. This is supported in Fig. 4, at page 27, lines 15 to 18, and at page 32, line 19 -21. That is, the susceptor 30 is positioned in the reacting chamber and the susceptor 30 has no shaft, so that the upper and lower planes on the susceptor within the outer periphery thereof are entirely exposed to the reacting chamber. The reference to Sato discloses the susceptor 30 having space above and lower the susceptor 30. However, the Sato reference only discloses the revolution structure without rotation of the substrates, and Nakao discloses a revolution and rational structure wherein the susceptor has a center shaft and stages 2 also have shafts. Thus, the combination of these references fails to disclose the space above and under the susceptor in the structure having revolution and rotation mechanisms. More specifically, in the Nakao reference, the stage 2 has a shaft which does not make upper and lower planes of the susceptor entirely exposed to the reacting chamber. Further, neither reference to Nakao nor Sato suggests such a combination.

Claim 36 recites a temperature control means in the reacting chamber that actually controls a temperature distribution over one of upper and lower planes on the susceptor within the outer periphery thereof, wherein the other one of upper and lower planes entirely faces the temperature control means. This is supported in Fig. 4, at page 27, lines 15 to 18, and at page 32,

line 19 - 21. That is, the susceptor 30 is positioned in the reacting chamber and the susceptor 30 has no shaft, so that the other one of upper and lower planes on the susceptor within the outer periphery thereof is entirely exposed to the temperature control means.

Claim 37 recites that the other one of upper and lower planes within the outer periphery of the susceptor entirely, directly faces the temperature control element. This is supported in Fig. 4 and at page 27, lines 15 to 18, and at page 32, line 19 - 21.

Claim 38 is supported as follows:

The recited feature, “to provide a non-rotational shaft structure at a center of the susceptor”, is supported at page 27, lines 15 to 18.

The recited feature, “the groove provided at the base plate comprising a lower support portion and an inner support portion extending in parallel to an axis of the rotatably retained susceptor for supporting the bearing outwardly from the axis of the rotatably retained susceptor, the groove, provided at the susceptor, substantially consisting of an upper support portion and an outer support portion extending in parallel to the axis for supporting the bearing inwardly with respect to an axis of the rotatably retained susceptor” is supported in Fig. 3, at page 11, line 21 to page 12, line 11.

The recited feature, “upper and lower planes on the susceptor within the outer periphery thereof being entirely exposed to the reacting chamber” is clearly supported in Fig. 4, at page 27, lines 15 to 18, and at page 32, line 19 - 21. That is, the susceptor 30 is positioned in the reacting chamber R and the susceptor 30 has no shaft, so that the upper and lower planes on the susceptor within the outer periphery thereof are entirely exposed to the reacting chamber R.

The recited feature, “by infrared radiation” is supported at page 27, line 26, and page 28, line 7.

The recited feature, “the other one of upper and lower planes at least at a center of the susceptor directly faces the temperature control element with respect to the heat radiation”, is supported in Fig. 4, and page 13, lines 10 to 25 and page 14, line 4 to 10.

The recited feature, “wherein the other one of upper and lower planes within the outer periphery of the susceptor entirely, directly faces the temperature control element”, is supported in Fig. 4 and at page 13, line 10 to 25, page 14, line 4 to 10, and page 27 lines 15 to 18.

The recited feature, “the revolution generating section is positioned outside the outer periphery of the susceptor in a radial direction of the susceptor”, is supported in Figs. 1.

The recited feature, “the annular substrate tray, the rotation input section, and the second rotating mechanism are substantially coplanar”, is supported in Figs. 1, 2, and 4 and at page 18, lines 8 to 20. As best seen in Fig. 4, the rotation generating section 4 and the annular substrate tray 20 are coplanar because a stationary gear (rotation generating section) 4 meshes with gear teeth provided at the outer periphery of each substrate tray 20,

The recited feature, “the susceptor is provided at a center portion with an opening as a part of the non-rotational shaft structure, and the opening is selectively covered by a cap member to control the temperature distribution”, is supported in page 14, lines; 12 to 17, page 30, lines 18 to 21, page 31, line 25 to page 32, line 2, and page 32 line 6 to 11.

Neither reference to Nakao or Sato suggests such a combination of features.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 10/002,177

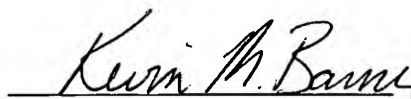
From above, each of the claims in this application are believed to be in condition for allowance. Favorable reconsideration of this application, as amended, is therefore respectfully requested.

Conclusion

In view of the foregoing amendments and remarks, the application is believed to be in form for immediate allowance with claims 19-29 and 31-39, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to **contact the undersigned** at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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